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**ABSTRACT:**

Moulded plant pots are made from cellulose fibre and lignin binder, a solid fertilizer which will only break down slowly, and peat in the preferred but not essential proportions, by weight, of 40%, 40% and 20% respectively. The cellulose fibre and lignin binder may be made from waste newspapers, magazines, cardboard or kraft paper. The solid fertilizer may be chemical of the "controlled release" type or may be organic fertilizer made from rotted (matured) waste from poultry-rearing deep-litter houses; crushed feathers or bones or heads or feet of poultry; cow-manure and the incorporated bedding material removed from cow-sheds; said waste being dried and milled to a powder. The solid fertilizer and the peat are mixed together and incorporated as uniformly as possible into the cellulose fibres/ lignin binder.

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**(54) Plant pots**

(57) Moulded plant pots are made from cellulose fibre and lignin binder, a solid fertilizer which will only break down slowly, and peat in the preferred but not essential proportions, by weight, of 40%, 40% and 20% respectively. The cellulose fibre and lignin binder may be made from waste newspapers, magazines, cardboard or kraft paper. The solid fertilizer may be chemical of the "controlled release" type or may be organic fertilizer made from rotted (matured) waste from poultry-rearing deep-litter houses; crushed feathers or bones or heads or feet of poultry; cow-manure and the incorporated bedding material removed from cow-sheds; said waste being dried and milled to a powder. The solid fertilizer and the peat are mixed together and incorporated as uniformly as possible into the cellulose fibres/ lignin binder.

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## SPECIFICATION

## Plant pots

5 This invention relates to plant pots.

There are moulded plant pots on the market which are made of wood fibre, peat and a chemical fertilizer. An inherent disadvantage of such a plant pot is that, when placed in the ground with a plant in it, the fertilizer leaches quite quickly into the ground and does not benefit the growing plant for as long a period of time as is desirable and that, when placed on staging or on a tray in a glasshouse with a seed or plant in it and thereafter watered, the fertilizer sinks to the bottom of the plant pot and therefore cannot be as much benefit to the seed or to the whole root system of the plant as was intended.

The principal object of the present invention is to provide a plant pot which is free from the aforementioned disadvantage.

Accordingly, the present invention consists in a moulded plant pot which comprises peat and a solid fertilizer which will only break down slowly, both of said peat and said fertilizer being incorporated in a carrier made from waste newspapers, magazines, cardboard or kraft paper. Said solid fertilizer may be either wholly organic or a chemical "controlled release" fertilizer.

It has been found, surprisingly, that a plant pot according to the invention is far more efficient from the horticultural point of view than the existing plant pots discussed in the second paragraph of this description because the fertilizer is maintained in any evenly dispersed condition in the plant pot wall and base, thereby releasing nutrients to the seed or plant root evenly. Although said nutrients will leach away as with existing plant pots, they will be continually replaced by the action of micro-organisms and bacteria on the fertilizer until the plant pot is eventually absorbed into the soil. The fertilizer cannot sink to the bottom of the plant pot because it is bound in place by the cellulose fibres and lignin which constitute the whole or a significant part of said waste materials, and this is particularly true of the organic fertilizer. Moreover, it is obviously desirable, particularly nowadays, to re-utilize such waste material as waste from deep-litter houses; and crushed feathers, bones, heads and feet of poultry.

It is at present considered that the following percentages, by weight, give a satisfactory composition from which plant pots according to the present invention can be made:-

55	Cellulose fibres and lignin binder	from 20% to 60% but preferably 40%
	Organic fertilizer	from 20% to 60% but preferably 40%
60	Peat	from 1% to 40% but preferably 20%

The organic fertilizer which is mentioned by way of example and which has been used so far, with excellent results, is waste material from deep litter houses in which poultry are intensively reared. This

waste is wood shavings and poultry manure; this is allowed to rot down or mature for about two to three months, and is then dried and milled to quite a fine powdery substance. Solid chemical fertilizers are, however, available which are of a so-called "controlled release" kind and it is thought that these could be used instead of a wholly organic fertilizer with excellent results.

The fertilizer is then mixed with peat and is incorporated as uniformly as possible into the mass of cellulose fibres and lignin binder obtained from the materials mentioned above by suitable treatment. In one form, said suitable treatment is, firstly, shredding for example old newspapers into narrow strips (say, one inch, 2.54 cms wide) and, secondly, pulping the shredded material in water and with the fertilizer and peat. The pulp thus obtained is then diluted to a very low solids content and the resultant product is fed to a screen mould where, under vacuum, most of the water is drawn off and the pot is formed. The wet plant pot is thereafter taken off by a transfer mould to be dried.

The preferred source, at present, of the cellulose fibres and lignin is old newspapers which are fairly easy to buy in suitably large quantities. An alternative source of these materials is waste magazines, cardboard and kraft paper, and other sources (such for example as straw) may be found eventually.

Cow manure and the usual additional straw or other bedding material removed from cow-sheds would also be suitable as the wholly organic fertilizer.

## CLAIMS

1. A moulded plant pot which comprises peat and a solid fertilizer which will only break down slowly, both of said peat and said fertilizer being incorporated in a carrier made from waste newspapers, magazines, cardboard or kraft paper.

2. A moulded plant pot as claimed in Claim 1, wherein the solid fertilizer is wholly organic.

3. A moulded plant pot as claimed in Claim 1, wherein the solid fertilizer is a chemical "controlled release" fertilizer.

4. A moulded plant pot as claimed in any one of the preceding Claims, wherein the constituent materials are present in the following percentages, by weight, namely,

	Cellulose fibres and lignin	from 20% to 60%
	Fertilizer	from 20% to 60%
115	Peat	from 1% to 40%

5. A moulded plant pot as claimed in Claim 4, wherein the preferred percentages by weight are

Cellulose fibres and lignin fibre	40%
Fertilizer	40%
Peat	20%

6. A moulded plant pot as claimed in Claim 2 or as claimed in Claim 4 when appended to Claim 2, wherein the organic fertilizer is waste material from deep litter houses in which poultry are intensively reared.

7. A moulded plant pot as claimed in Claim 6, wherein said waste is essentially wood shavings and poultry manure which are allowed to rot down or mature for about two to three months and which are then dried and milled to quite a fine powdery

substance.

8. A method of making a moulded plant pot which comprises peat and a solid fertilizer which will only break down slowly, said peat and said fertilizer being incorporated in a carrier composed of cellulose fibres and lignin binder, said method comprising the following steps, namely,

- (a) shredding newspapers, magazines, cardboard or kraft paper and pulping said shredded material with said solid fertilizer and said peat;
- (b) diluting said pulp to such an extent that there is a very low (for example 1%) solids content;
- (c) forming a plant pot by drawing the diluted pulp on to a screen mould which is connected to a vacuum source; and
- (d) removing the formed plant pot from said screen mould by means of a transfer mould to a location at which the remaining water in the formed plant pot is dried off.

9. A method as claimed in Claim 8, in which the newspapers, magazines, cardboard or kraft paper are shredded into narrow strips before being so pulped, said strips being for example, one inch (2.54 cm) wide.

10. A method as claimed in Claim 8 or Claim 9, wherein the solid fertilizer is a wholly organic fertilizer which is treated in the following manner:

- (a) allowing waste material obtained from deep litter houses in which poultry are intensively reared to rot down or mature;
- (b) drying said rotted or matured waste material;
- (c) milling said dried material to a fine powdery condition;
- (d) mixing said milled material with peat; and
- (e) incorporating the mixture of milled material and peat as uniformly as possible in said shredded material; the relative proportion, by weight, of the constituents being kept as follows:

binder	from 20% to 60% but preferably 40%
organic fertilizer	from 20% to 60% but preferably 40%
peat	from 1% to 40% but preferably 20%

11. A moulded plant pot substantially as hereinbefore described.

12. A method of making a moulded plant pot as claimed in Claim 11, substantially as hereinbefore described.